

1 1. A well service composition, comprising:
2 a fracturing fluid; and
3 a gas hydrate controller,
4 wherein the gas hydrate controller is in an amount effective to control the formation of gas
5 hydrates.

1 2. The composition of claim 1, wherein the fracturing fluid comprises:
2 an aqueous fluid;
3 a water-soluble polymer; and
4 a cross-linking agent capable of increasing the viscosity of the fracturing fluid by
5 crosslinking the polymer in the aqueous fluid.

1 3. The composition of claim 1, wherein the fracturing fluid comprises:
2 an aqueous fluid;
3 a guar polymer or a derivative thereof, the polymer dispersible or hydratable in the
4 aqueous fluid; and
5 a borate cross-linking agent.

1 4. The composition of claim 2, wherein the aqueous fluid is mixed with the polymer on
2 a ratio of about 20 pounds or less of the polymer for 1,000 gallons of the aqueous fluid.

1 5. The composition of claim 2, wherein the aqueous fluid is mixed with the polymer on
2 a ratio of about 15 pounds or less of the polymer for 1,000 gallons of the aqueous fluid.

1 6. The composition of claim 2, wherein the aqueous fluid is mixed with the polymer on
2 a ratio of about 20 pounds or more of the polymer for 1,000 gallons of the aqueous fluid.

1 7. The composition of claim 2, wherein the aqueous fluid is mixed with the polymer on
2 a ratio of about 40 pounds to about 60 pounds of the polymer for 1,000 gallons of the aqueous fluid.

1 8. The composition of claim 2, wherein the polymer is a polysaccharide.

1 9. The composition of claim 2, wherein the polymer is guar, carboxymethyl guar,
2 carboxyethyl guar, hydroxypropyl guar, hydroxyethyl guar, carboxymethylhydroxypropyl guar, salts
3 thereof, or mixtures thereof.

1 10. The composition of claim 3, wherein the polymer is guar, carboxymethyl guar,
2 carboxyethyl guar, hydroxypropyl guar, hydroxyethyl guar, carboxymethylhydroxypropyl guar, salts
3 thereof, or mixtures thereof.

1 11. The composition of claim 2, wherein the cross-linking agent is boric acid,
2 organoborate, boric oxide, alkali metal borate, alkaline earth metal borate, or a mixture thereof.

1 12. The composition of claim 1, wherein the fracturing fluid further comprises a
2 proppant.

1 13. The composition of claim 1, wherein the fracturing fluid further comprises a breaking
2 agent.

1 14. The composition of claim 1, wherein the fracturing fluid further comprises a clay
2 stabilizer.

1 15. The composition of claim 14, wherein the clay stabilizer is KCl or a quarternary
2 ammonium salt.

1 16. The composition of claim 1, wherein the fracturing fluid further comprises a pH
2 buffering agent

1 17. The composition of claim 1, wherein the fracturing fluid has a pH in the range of
2 about 3.2 to about 11.0.

1 18. The composition of claim 1, wherein the fracturing fluid has a pH in the range of
2 about 9.8 to about 10.5.

1 19. The composition of claim 1, wherein the gas hydrate controller is a
2 polyglycolpolyamine.

1 20. The composition of claim 19, wherein the gas hydrate controller further comprises
2 a second polymer capable of controlling or minimizing the formation of gas hydrates.

1 21. The composition of claim 20, wherein the second polymer is a homopolymer or
2 copolymer of N, N-dialkylamineoethylmethacrylates or a mixture thereof.

1 22. The composition of claim 20, wherein the second polymer is a homopolymer or
2 copolymer of N-vinyl-N-alkyl amides or a mixture thereof.

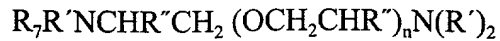
1 23. The composition of claim 20, wherein the second polymer is a homopolymer or
2 copolymer of N-vinyl lactams or a mixture thereof.

1 24. The composition of claim 20, wherein the second polymer is a homopolymer or
2 copolymer of N-methyl-N-vinylacetamide /lactams or a mixture thereof.

1 25. The composition of claim 20, wherein the second polymer is a homopolymer or
2 copolymer of N-acyl substituted polyalkeneimines or a mixture thereof.

1 26. The composition of claim 19, wherein the polyglycolpolyamine is a polycondensation
2 product of a reaction between a polyoxyalkylene glycol and a polyamine.

1 27. The composition of claim 19, wherein the polyglycolpolyamine has the structure:



3 wherein R_7 is H, CH_3 , or $-[R'NCH(R'')CH_2(OCH_2CH(R''))_nNR']_m-R'$;

4 wherein R' is H or CH_3 ;

5 wherein R'' is H or CH_3 ;

6 wherein n is 1 to 99; and

7 wherein m is 0 to 99.

1 28. The composition of claim 1, wherein the gas hydrate controller is from about 0.01
2 to about 5% by weight of the water in the composition.

1 29. The composition of claim 1, wherein the gas hydrate controller is from about 0.05
2 to about 1% by weight of the water in the composition.

1 30. The composition of claim 1, wherein the gas hydrate controller is from about 0.03
2 to about 0.75% by weight of the water present in the composition.

1 31. A method of fracturing a subterranean formation comprising:
2 obtaining a well service composition comprising a fracturing fluid and a gas hydrate
3 controller, said gas hydrate controller being present in said composition in an amount effective to
4 control the formation of gas hydrates;
5 injecting the well service composition into a borehole to contact at least a portion of the
6 formation by the fracturing fluid under a sufficient pressure to fracture the formation.

1 32. A method of servicing a subterranean formation comprising:
2 injecting a gas hydrate controller comprising a polyglycolpolyamine into a borehole that has
3 been treated with a fracturing fluid.

1 33. The method of claim 32, wherein the gas hydrate controller further comprises a
2 polymer capable of controlling or minimizing the formation of gas hydrates.

1 34. The method of claim 33, wherein the polymer is a homopolymer or copolymer of N,
2 N-dialkylamineoethylmethacrylates or a mixture thereof.

1 35. The method of claim 33, wherein the polymer is a homopolymer or copolymer of N-
2 vinyl-N-alkyl amides or a mixture thereof.

1 36. The method of claim 33, wherein the polymer is a homopolymer or copolymer of
2 N-vinyl lactams or a mixture thereof.

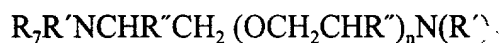
1 37. The method of claim 33, wherein the polymer is a homopolymer or copolymer of
2 N-methyl-N-vinylacetamide /lactams or a mixture thereof.

1 38. The method of claim 33, wherein the polymer is a homopolymer or copolymer of
2 N-acyl substituted polyalkeneimines or a mixture thereof.

1 39. The method of claim 33, wherein the polymer is a homopolymer or a copolymer of
2 N,N-dialkylaminoethylmethacrylates, N-vinyl-N-alkyl amides, and N-vinyl lactams, N-methyl-N-
3 vinylacetamide /lactam copolymer, an N-acyl substituted polyalkeneimines or a mixture thereof.

1 40. The method of claim 32, wherein the polyglycolpolyamine is a polycondensation
2 product of a reaction between a polyoxyalkylene glycol and a polyamine, or a mixture thereof.

1 41. The method of claim 32, wherein the polyglycolpolyamine has the structure:



3 wherein R_7 is H, CH_3 , or $-[R'NCHR''CH_2(OCH_2CHR'')_nNR']_m-R'$;

4 wherein R' is H or CH_3 ;

5 wherein R'' is H or CH_3 ;

6 wherein n is 1 to 99; and

7 wherein m is 0 to 99.

1 42. The method of claim 32, wherein the gas hydrate controller is from about 0.01 to
2 about 5% by weight of the water in the composition.

1 43. The method of claim 32, wherein the gas hydrate controller is from about 0.05 to
2 about 1% by weight of the water in the composition.

1 44. The method of claim 32, wherein the gas hydrate controller is from about 0.03 to
2 about 0.75% by weight of the water present in the composition.

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